

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant: Ronald A. Kramer

Examiner: J. Snay

Serial No: 08/665,491

Group Art Unit: 1743

Filed: June 18, 1996

Date: June 29, 2001

For: CONDITIONER, APPLICATOR, AND PROCESS THEREFOR

Assistant Commissioner for Patents

Washington, D. C. 20231

Attention: Board of Patent Appeals and Interferences

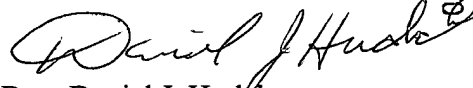
SUBMISSION OF TWO COPIES OF BRIEF OF APPELLANT

Sir:

In accordance with the Order Remanding To Examiner mailed June 22, 2001,
Appellants submit two additional copies of the Appeal Brief filed September 23, 1998 in
compliance with item 3 thereon.

Respectfully submitted,

HUDAK & SHUNK CO., L.P.A.



By: Daniel J. Hudak

Registration No. 25,879

DJH/lb

7 West Bowery Street
Suite 808
Akron, OH 44308-1133
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Attorney Docket No.: BAND-A

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CERTIFICATE OF MAILING

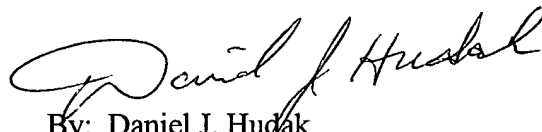
Sir:

The undersigned hereby certifies that the attached **SUBMISSION OF TWO ADDITIONAL COPIES OF A BRIEF OF APPELLANT AND TWO COPIES OF BRIEF OF APPELLANT** were mailed to the Assistant Commissioner for Patents, Washington, D.C. 20231, with sufficient first-class postage, no special handling, on June 29, 2001, before 5:00 PM, thereby ensuring that such document(s) will be in the hands of the U.S. Postal Service by the close of business this day. Thus, timely response has been made to the outstanding Office action prior to expiration of the shortened statutory period for the same ending **NONE**.

The Commissioner is hereby authorized to charge any fees which might be required or credit any overpayment of fees with regard to the attached document(s) to Account No. **08 -3150**.

Respectfully submitted,

HUDAK & SHUNK CO., L.P.A.



By: Daniel J. Hudak

Registration No. 25,879

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Akron, OH 44308-1133
(330) 535-2220

Attorney Docket No.: BAND-A

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Submission of Two Additional Copies of Brief of Appellant
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: Ronald A. Kramer

Examiner: J. Snay #266

Serial No.: 08/665,491

Group Art Unit: 1313

Filed: 06/18/96

Date: 09/14/98

For: CONDITIONER, APPLICATOR AND PROCESS THEREOF

Assistant Commissioner for Patents
Washington, D.C. 20231

Attention: Board of Patent Appeals and Interferences

CERTIFICATE OF MAILING

Sir:

The undersigned hereby certifies that the attached Brief of Appellant and a request for a one-month time extension was mailed to Assistant Commissioner for Patents, Washington, D.C. 20231, with sufficient first-class postage, no special handling, on September 14, 1998, before 5:00 PM, thereby ensuring that such document(s) will be in the hands of the U.S. Postal Service by the close of business this day.

The Commissioner is hereby authorized to charge any fees which might be required or credit any overpayment of fees with regard to the attached document(s) to Account No. 08-3150.

Respectfully submitted,

HUDAK & SHUNK CO., L.P.A.

Samuel B. Laferty
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Assistant Commissioner for Patents
Washington, D.C. 20231

Attention: Board of Patent Appeals and Interferences

BRIEF OF APPELLANT

Sir:

In accordance with the Notice of Appeal filed by appellant on June 15, 1998, applicant hereby appeals from the final rejection of the above-identified patent application.

1. THE REAL PARTY IN INTEREST:

The real party in interest is Bandon Corp., a corporation organized under the laws of the State of Ohio, domiciled at 8420 Kilbirnie Court, Dublin, OH 43017, U.S.A.

2. RELATED APPEALS AND INTERFERENCES:

None.

3. STATUS OF CLAIMS:

Claims 13 - 20 were finally rejected on March 17, 1998, and the rejection was maintained in Advisory Actions of April 14, 1998 and May 15, 1998. All of claims 13, 15-18 and 20 are appealed. Claims 1 - 12, 14 and 21 - 28 are cancelled without bias or prejudice. Claim 19 was canceled in an Amendment "E" filed the same day as this Appeal Brief.

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4. STATUS OF AMENDMENTS:

Subsequent to the final rejection of March 17, 1998, applicant amended claims 13, 15 and 17 and canceled claim 14 in a response dated May 7, 1998. In a response to that amendment, dated May 15, 1998, the Examiner indicated that the proposed amendments will be entered upon the filing of a Notice of Appeal and an Appeal Brief. An amendment canceling claim 19 has not yet been considered.

5. SUMMARY OF THE INVENTION:

The invention of the appealed claims relates to a process for treating the rubber, thermoplastic elastomer, or plastic wiper blades, by applying a sulfonic acid or salt thereof to the wiper blade. This is generally set forth in the first 2 sentences of the Summary of Invention. The invention also provides a method to easily soften the blade and remove contaminants from the surface of the blade without the necessity of removing the blade from its holder, or the vehicle, thereby extending the life of the wiper blade. The invention results in a reduction in streaking e.g., reduced streaking during the operation of the windshield wiper on an automobile. These uses are set forth in the second and third paragraph of the Summary of Invention in the Application. The preferred formulas of the sulfonic acids are given in claims 15, 16 and 17. Claims 18, 19 and 20 set forth additional components to the treating solution such as diluents, lubricants, viscosity modifiers and rubber protectorants.

In order to fully understand the operation of the invention and the operation of wiper blades it is helpful to understand:

A) Wiper blades are designed to operate by pushing water ahead of the moving conjunction of the blade and surface of the glass windshield.

B) To accomplish this the wiper should have a sufficiently high coefficient of friction measured on the surface being wiped. Otherwise, the blade will simply ride over the water, resulting in streaking.

C) While in use on a vehicle, wiper blade's surfaces are subjected to environmental contamination by insoluble grime and contaminants which cause a lowering of the blade's coefficient of friction, resulting in an increased propensity to ride over water and cause streaks which undesirably reduces visibility through the windshield.

D) In the present application, acids, and in particular sulfonic acid, are used to both remove grime and contaminants from the wiper and the windshield, and to increase the blade's coefficient of friction on the windshield, thereby returning the coefficient of friction to its original desirable coefficient of friction. This increase in the coefficient of friction typically continues even after the majority of the sulfonic acid has washed off, indicating a modification of the wiper by the acid, which is not taught by the prior art.

E) In Liddle, sulfonic acid was used in combination with polysiloxane for exactly the opposite purpose, that is to decrease the coefficient of friction of the glass windshield so that water would run off rather than adhere to the glass.

F) Similarly, Palcher accomplished his objectives of protecting wiper blades by decreasing the blade's coefficient of friction so that dirt and other contaminants would not adhere to the blade's surface. (Column 1, lines 27 - 30).

G) In the present application the objectives (reducing blade streaking) are met by just the opposite means, that is increasing the blade's coefficient of friction (by applying a sulfonic acid) so the blade pushes the water off the windshield rather than simply riding over the water.

6. ISSUES:

At issue is whether claim 13 is obvious under 35 U.S.C. § 103 over Liddle (U.S. Patent 3,998,643) in view of Palcher (U.S. Patent 3,956,174), and whether claims 15 - 20 are obvious under 35 U.S.C. § 103A as being unpatentable over Liddle in view of Palcher, and further, in view of Bright et al. (U.S. Patent 3,978,010).

Applicant has argued that the references applied by the Examiner are only combinable using hindsight, and there is no motivations in the references to combine them, nor to combine the particular elements required from the references to generate a process similar to applicant's claims. Applicant also argued there was closer prior art, which he supplied, which teaches against the use of acids on wiper blades that are causing streaking.

The Examiner argues that Liddle discloses a method for treating non-porous surfaces, including glass and plastic, comprising applying the composition which includes an alkyl polysiloxane, and an acid such as an aromatic sulfonic acid or hydrofluoric acid. The treatment is disclosed as being effective for rendering the surface water repellent, dirt repellent and frost and ice repellent (see col. 4, lines 1-34) and thus provides a motivation for using an acid in conjunction with a polysiloxane.

Applicant's pragmatic response to this argument is that the Liddle et al. treatment would reduce the coefficient of friction of the wiper blade causing streaking rather than preventing streaking.

Liddle teaches an automobile windshield as a particular surface to be treated as an example of the claimed nonporous surfaces. The Examiner admits Liddle differs from the claimed invention in that it fails to teach applying the composition to a windshield wiper. The Examiner notes that Palcher teaches treatment of

rubber, e.g., automobile tires, with an alkyl polysiloxane composition to protect against environmental conditions such as ozone and UV radiation. He asserts it would have been obvious to anyone skilled in the art to apply the treating composition of Liddle, for windshields, to wiper blades, in order to obtain water and dirt repellency as taught by Liddle, and further to obtain the rubber protection against environmental damage as taught by Palcher. The Examiner adds the reference Bright et al. for its teaching on the selection of aromatic sulfonic acids based upon their suitability for the intended purpose. He notes that Bright et al. is relied upon solely as evidence that sulfonic acids of the types recited in applicant's claims were known as useful in cleaning compositions.

An issue is whether the Liddle reference would be combinable by one skilled in the art with the Palcher reference, in view of the fact that Liddle is limited to providing water and dirt repellency by providing a polysiloxane surface treatment, while Palcher is trying to preserve rubber by penetrating the rubber with an emulsion containing diethyl polysiloxane (see abstract, 1st and 2nd paragraph). Applicant argues that the fact that the Palcher reference frequently uses the word "penetrating" of the rubber, brings out the fact that it is considered porous, while the Liddle reference is limited to teaching and claims for treatments for non-porous surfaces. Further, both the treatments of the Liddle and Palcher references would decrease the coefficient of friction, thereby increasing streaking.

A second issue is whether one skilled in the art, after reading the most relevant prior art, i.e. U.S. Patent 4,045,838 to Porter; U.S. Patent 4,256,683 to Porter; U.S. Patent 3,997,935 to Porter, and U.S. Patent 3,035,297 to Overman, which teach that inorganic acids such as nitric acid and sulfuric acid or chlorinating can be used to harden windshield wiper blades to reduce the coefficient of friction, would combine limited portions of the teachings of the Liddle and Palcher

references, so as to use only sulfonic acid as a treatment to reduce streaking caused by the wiper blade. It is applicant's position that used wiper blades do not need hardening (lowering coefficient of friction), but rather need softening (increasing coefficient of friction) to reduce streaking as already discussed. In view of the fact that the most relevant prior art teaches that inorganic acids such as nitric and sulfuric are used to harden new wiper blades that are too tacky (U.S. 4,045,838, col. 1, lines 39-43, and col. 2, lines 33-41) it would be unlikely that of one skilled in the art to think to apply acids to soften old wiper blades that were causing streaking.

7. GROUPING OF CLAIMS

Claims 13, 15-18, and 20 stand or fall together.

8. ARGUMENTS

Applicant continues his argument that the Examiner has not established a prima facie case of obviousness under 35 U.S.C. § 103. Rather, he has, by using hindsight, combined selected elements from 3 references, only 2 of which, i.e., Bright et al. and Liddle, mention applicant's claimed sulfonic acid. The only reason the Examiner has to combine the Liddle reference and the Palcher reference is the use of polysiloxanes in both references (applicant neither needs nor claims polysiloxanes). In fact, polysiloxanes would be incompatible with the purpose of the present invention because they will actually increase rather than decrease wiper blade streaking, since the polysiloxanes reduce the coefficient of friction below the value needed to push water ahead of the wiper blades. Therefore, the common element (polysiloxane) does not form a strong basis to combine these two references when polysiloxane is not claimed by applicant.

In order to more concisely set forth applicant's arguments, and better distinguish the invention from the prior art, he sets them forth below as seven points:

I. Wiper blades are designed to operate by pushing water ahead of the moving conjunction of the blade and surface of the glass windshield.

II. To accomplish this the wiper should have a sufficiently high coefficient of friction. Otherwise, the blade will simply ride over the water, resulting in streaking.

III. While in use on a vehicle, wiper blade's surfaces are subjected to environmental contamination by insoluble grime and contaminants which cause a lowering of the blade's coefficient of friction, resulting in an increased propensity to ride over water and cause streaks which undesirably reduces visibility through the windshield.

IV. In the present application, acids, and in particular sulfonic acid, are used to both remove grime and contaminants from the wiper and the windshield, and to increase the blade's coefficient of friction on the windshield back to its desired coefficient of friction on the windshield by interacting with the blade. This increase in coefficient of friction typically continues even after the majority of the sulfonic acid has washed off, indicating a modification of the wiper by the acid, which is not taught by the prior art.

V. In Liddle, sulfonic acid was used in combination with polysiloxane for exactly the opposite purpose, that is to decrease the coefficient of friction on the glass windshield so that water would run off rather than adhere to the glass.

VI. Palcher accomplished his objectives of protecting wiper blades by decreasing the blade's coefficient of friction so that dirt and other contaminants would not adhere to the blade's surface. (Column 1, lines 27 - 30).

VII. In the present application the objectives (reducing blade streaking) are met by just the opposite means, that is increasing the blade's coefficient of friction (by applying an acid) so the blade pushes the water off the windshield rather than simply riding over the water.

There is no reasonable basis for one skilled in the art to combine the teachings of the Liddle and Palcher references in such a way as to exclude or not require the use of polysiloxane. The examiner has ignored the requirement of both references that a polysiloxane be used and has rather only required the use of one particular acid (i.e., sulfonic acid) which was not taught by the Palcher reference and was not used in any of the examples of the Liddle reference (Liddle used sulfuric and hydrofluoric acid). It is applicants' understanding that all of the desirable properties of the Palcher and Liddle references (except for long term retention of hydrophobicity) are attributed to the polysiloxane component. Only by using hindsight and recognizing that the only element required in applicant's claims is sulfonic acid, would one be motivated to combine the Palcher and Liddle references in order to use sulfonic acid by itself (a component only optionally used in the Liddle reference, and not used at all in the examples where hydrofluoric acid was used), and without the use of polysiloxane (a major functional component in Palcher and in the treatment of the Liddle reference, see column 2 of Liddle reference, lines 51 - 65 wherein only from 1 to 30 wt. % acid was used per 100 parts of polysiloxane). Further, as can be seen from the Palcher claims, 1 - 5, the composition thereof is limited to consisting essentially of emulsifiable organo polysiloxanes and water miscible polyol compounds.

In the Background of Invention of the Liddle reference, col. 1, lines 36-44, it is pointed out that the use of acids with polysiloxanes was published as early

as May, 1971 in U.S. Patent 3,579,540 for the treatment of non-porous surfaces such as glass. Therefore, the technology of using acids and polysiloxanes was readily publicly available before the time the Palcher reference was filed (between October, 1971 through January, 1974), and would have been included in the Palcher reference if the concept of using sulfonic acid alone, or in combination with polysiloxane, to treat rubber wiper blades had the same appeal to the inventor of the Palcher reference that it has to the Examiner.

In summary, a prima facie valid 103 rejection has to have some motivation for selecting particular components from the references chosen. As the Palcher and Liddle references both require polysiloxane as an essential ingredient to their treatments, there is no motivation for one skilled in the art to delete the key ingredient and, instead, select sulfonic acid (mentioned in the Liddle specification but not used in the Liddle examples) as a treatment for wiper blades.

The Bright et al. reference also has no reason to be combined with the Palcher and Liddle references, absent the teachings of applicant's specification. The title of the Bright et al. reference relates to windshield cleaner formulations which has no relationship to the Palcher reference, which is a treatment for rubber, polymers, leather, etc. The Bright et al. reference being a cleaner composition, is the anti-thesis of the Liddle reference, which is a treatment for the glass or other non-porous surface to make it dirt repellent and water repellent. The cleaning solution of the Bright et al. reference would, if it is an effective cleaning solution, probably partially or completely remove the treatment of the Liddle reference. As the Palcher reference does not mention any acids, especially sulfonic acid, there is no reason to combine the Bright et al. reference therewith, which is based on sulfonic acids.

Finally, applicant would like to review how one skilled in the art would evaluate the references applied by the Examiner. One skilled in the art would be aware of U.S. Patents such as U.S. 4,045,838 to Raymond Porter, which nicely summarizes the background of the windshield wiper treatments and the manufacture of windshield wiper blades in col. 1, line 37 through col. 2, line 51. One skilled in the art would know that the coefficient of friction of a windshield wiper blade is desirably no greater than 2.1, and preferably less than 1.5 or 1 as set forth in col. 1, lines 55-65. One skilled in the art would know that often times, new wiper blades have too high of a coefficient of friction, and this can be reduced by halogenation such as taught in U.S. Patent 3,035,297, or by treatment with an inorganic acid. These treatments are set forth in U.S. Patent 4,045,838, col. 2, lines 28-41. Although this information is most conveniently found in this particular patent 4,045,838, it is also available in the numerous other prior art references supplied to the Examiner with the Information Disclosure Statement, or during the prosecution of this application.

One skilled in the art, based upon the teachings of U.S. 4,045,838, specifically col. 2, lines 38, 39, 40 and 41 would know that inorganic acids such as nitric acid and sulfuric acid, used as treatments of wiper blades will in a relatively short time, such as 2 minutes, reduce the coefficient of friction of wiper blades. One skilled in the art knowing about the use of inorganic acid such as hydrochloric acid, sulfonic acid and hydrofluoric acid would not anticipate them as effective ways of softening or otherwise treating used windshield wiper blades (which may have hardened from use or environmental exposure), nor would one skilled in the art combine an inorganic acid, based on the Palcher and Liddle references, with polysiloxanes unless the purpose of the

treatment was to decrease the coefficient of friction of the windshield wiper blade which is contrary to the purpose of the captioned invention.

The current applicant has found that sulfonic acid softens the windshield wiper blade (this can also be expressed as increasing the coefficient of friction of the windshield wiper blade) which is contrary to the teachings of U.S. 4,045,838 with respect to sulfuric or nitric acid. Thus, applicant has an unexpected result over the most relevant prior art. The unexpected result is reported in detail in applicant's application on pages 1 and 15, wherein he shows that the sulfonic acid treatments, Example 11, and generally 16-39, dramatically reduce streaking of windshield wiper blades. Applicant's point here is that one skilled in the art would have been taught by the prior art against using sulfonic acid to soften the wiper blades to reduce windshield wiper streaking. The Liddle reference, being directed to the improvements derived from the reaction product of polysiloxanes with these inorganic acids, contravenes the merit of using sulfonic acid alone as a treatment of rubber wiper blades because as discussed above, the polysiloxane undesirably reduces rather than increases the blade's coefficient of friction.

9. RELIEF SOUGHT

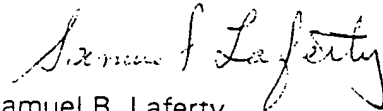
It is respectfully requested that the final rejection of claims 13, 15-18, and 20 be reversed. A Notice of Allowance is earnestly solicited.

10. FEE AUTHORIZATION

A check for \$210 is enclosed for the Appeal Brief fee of \$155.00, and the one-month extension of time fee of \$55.00 for a small entity. The Commissioner is hereby authorized to charge any additional fees to Deposit Account No. 08-3150. A duplicate of this sheet is attached.

Respectfully submitted,

HUDAK & SHUNK CO., L.P.A.



Samuel B. Laferty

Registration No. 31,537

SBL/sms

7 West Bowery Street, Suite 808
Akron, OH 44308-1133
Telephone: (330) 535-2220

ATTORNEY DOCKET: BAND-A

Enclosure: Copy of U.S. Patent No. 4,045,838

APPENDIX

APPEALED CLAIMS

Claims 1 - 12 are cancelled.

13. A process for treating a rubber, a thermoplastic elastomer, or a plastic wiper blade comprising;

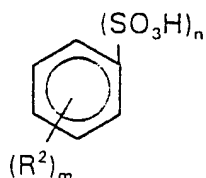
applying a composition including one or more sulfonic acids or salt thereof to the wiping surface of said wiper blade, said sulfonic acid having from about 2 to about 36 carbon atoms.

14. Cancelled

15. A process according to claim 13, wherein said sulfonic acid is an alkyl sulfonic acid of the formula



wherein R^1 contains from 2 to 36 carbon atoms, or
an aromatic sulfonic acid having the formula



or combinations thereof, or

a metal salt of said alkyl sulfonic acid or said aromatic sulfonic acid, wherein m is an integer of 1 to 4, n is an integer of from 1 to 4, with the proviso that $m + n$ is 6 or less, wherein each R^2 , independently, is an alkyl having from 1 to 30 carbon atoms and optionally contains at least one halogen, nitro, alcohol, carbonyl, or carboxyl group thereon, or combinations thereof.

16. A process according to claim 15, wherein each said R^2 group has a total of from about 9 to 13 carbon atoms.

17. A process according to claim 16, wherein said sulfonic acid is said aromatic sulfonic acid, or an alkali metal or an amine salt thereof, or combinations thereof.

18. A process according to claim 17, wherein said composition further includes one or more diluents.

(Applicant has requested the cancellation of claim 19)

19. A process according to claim 17, wherein said composition further includes one or more lubricants.

20. A process according to claim 17, wherein said composition further includes one or more water miscible solvents, or one or more acids other than said sulfonic acid, or one or more agents to adjust the viscosity of said composition, or one or more rubber protectorants to protect said rubber, said thermoplastic elastomer, or said plastic wiper blade from oxidation, or one or more neutralizers, or one or more plasticizers or softeners, or combinations thereof.

Claims 21 - 28 are cancelled.

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BRIEF OF APPELLANT

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1. THE REAL PARTY IN INTEREST:

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2. RELATED APPEALS AND INTERFERENCES:

None.

3. STATUS OF CLAIMS:

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In order to fully understand the operation of the invention and the operation of wiper blades it is helpful to understand:

A) Wiper blades are designed to operate by pushing water ahead of the moving conjunction of the blade and surface of the glass windshield.

B) To accomplish this the wiper should have a sufficiently high coefficient of friction measured on the surface being wiped. Otherwise, the blade will simply ride over the water, resulting in streaking.

C) While in use on a vehicle, wiper blade's surfaces are subjected to environmental contamination by insoluble grime and contaminants which cause a lowering of the blade's coefficient of friction, resulting in an increased propensity to ride over water and cause streaks which undesirably reduces visibility through the windshield.

D) In the present application, acids, and in particular sulfonic acid, are used to both remove grime and contaminants from the wiper and the windshield, and to increase the blade's coefficient of friction on the windshield, thereby returning the coefficient of friction to its original desirable coefficient of friction. This increase in the coefficient of friction typically continues even after the majority of the sulfonic acid has washed off, indicating a modification of the wiper by the acid, which is not taught by the prior art.

E) In Liddle, sulfonic acid was used in combination with polysiloxane for exactly the opposite purpose, that is to decrease the coefficient of friction of the glass windshield so that water would run off rather than adhere to the glass.

F) Similarly, Palcher accomplished his objectives of protecting wiper blades by decreasing the blade's coefficient of friction so that dirt and other contaminants would not adhere to the blade's surface. (Column 1, lines 27 - 30).

G) In the present application the objectives (reducing blade streaking) are met by just the opposite means, that is increasing the blade's coefficient of friction (by applying a sulfonic acid) so the blade pushes the water off the windshield rather than simply riding over the water.

6. ISSUES:

At issue is whether claim 13 is obvious under 35 U.S.C. § 103 over Liddle (U.S. Patent 3,998,643) in view of Palcher (U.S. Patent 3,956,174), and whether claims 15 - 20 are obvious under 35 U.S.C. § 103A as being unpatentable over Liddle in view of Palcher, and further, in view of Bright et al. (U.S. Patent 3,978,010).

Applicant has argued that the references applied by the Examiner are only combinable using hindsight, and there is no motivations in the references to combine them, nor to combine the particular elements required from the references to generate a process similar to applicant's claims. Applicant also argued there was closer prior art, which he supplied, which teaches against the use of acids on wiper blades that are causing streaking.

The Examiner argues that Liddle discloses a method for treating non-porous surfaces, including glass and plastic, comprising applying the composition which includes an alkyl polysiloxane, and an acid such as an aromatic sulfonic acid or hydrofluoric acid. The treatment is disclosed as being effective for rendering the surface water repellent, dirt repellent and frost and ice repellent (see col. 4, lines 1-34) and thus provides a motivation for using an acid in conjunction with a polysiloxane.

Applicant's pragmatic response to this argument is that the Liddle et al. treatment would reduce the coefficient of friction of the wiper blade causing streaking rather than preventing streaking.

Liddle teaches an automobile windshield as a particular surface to be treated as an example of the claimed nonporous surfaces. The Examiner admits Liddle differs from the claimed invention in that it fails to teach applying the composition to a windshield wiper. The Examiner notes that Palcher teaches treatment of

rubber, e.g., automobile tires, with an alkyl polysiloxane composition to protect against environmental conditions such as ozone and UV radiation. He asserts it would have been obvious to anyone skilled in the art to apply the treating composition of Liddle, for windshields, to wiper blades, in order to obtain water and dirt repellency as taught by Liddle, and further to obtain the rubber protection against environmental damage as taught by Palcher. The Examiner adds the reference Bright et al. for its teaching on the selection of aromatic sulfonic acids based upon their suitability for the intended purpose. He notes that Bright et al. is relied upon solely as evidence that sulfonic acids of the types recited in applicant's claims were known as useful in cleaning compositions.

An issue is whether the Liddle reference would be combinable by one skilled in the art with the Palcher reference, in view of the fact that Liddle is limited to providing water and dirt repellency by providing a polysiloxane surface treatment, while Palcher is trying to preserve rubber by penetrating the rubber with an emulsion containing diethyl polysiloxane (see abstract, 1st and 2nd paragraph). Applicant argues that the fact that the Palcher reference frequently uses the word "penetrating" of the rubber, brings out the fact that it is considered porous, while the Liddle reference is limited to teaching and claims for treatments for non-porous surfaces. Further, both the treatments of the Liddle and Palcher references would decrease the coefficient of friction, thereby increasing streaking.

A second issue is whether one skilled in the art, after reading the most relevant prior art, i.e. U.S. Patent 4,045,838 to Porter; U.S. Patent 4,256,683 to Porter; U.S. Patent 3,997,935 to Porter, and U.S. Patent 3,035,297 to Overman, which teach that inorganic acids such as nitric acid and sulfuric acid or chlorinating can be used to harden windshield wiper blades to reduce the coefficient of friction, would combine limited portions of the teachings of the Liddle and Palcher

references, so as to use only sulfonic acid as a treatment to reduce streaking caused by the wiper blade. It is applicant's position that used wiper blades do not need hardening (lowering coefficient of friction), but rather need softening (increasing coefficient of friction) to reduce streaking as already discussed. In view of the fact that the most relevant prior art teaches that inorganic acids such as nitric and sulfuric are used to harden new wiper blades that are too tacky (U.S. 4,045,838, col. 1, lines 39-43, and col. 2, lines 33-41) it would be unlikely that of one skilled in the art to think to apply acids to soften old wiper blades that were causing streaking.

7. GROUPING OF CLAIMS

Claims 13, 15-18, and 20 stand or fall together.

8. ARGUMENTS

Applicant continues his argument that the Examiner has not established a prima facie case of obviousness under 35 U.S.C. § 103. Rather, he has, by using hindsight, combined selected elements from 3 references, only 2 of which, i.e., Bright et al. and Liddle, mention applicant's claimed sulfonic acid. The only reason the Examiner has to combine the Liddle reference and the Palcher reference is the use of polysiloxanes in both references (applicant neither needs nor claims polysiloxanes). In fact, polysiloxanes would be incompatible with the purpose of the present invention because they will actually increase rather than decrease wiper blade streaking, since the polysiloxanes reduce the coefficient of friction below the value needed to push water ahead of the wiper blades. Therefore, the common element (polysiloxane) does not form a strong basis to combine these two references when polysiloxane is not claimed by applicant.

In order to more concisely set forth applicant's arguments, and better distinguish the invention from the prior art, he sets them forth below as seven points:

I. Wiper blades are designed to operate by pushing water ahead of the moving conjunction of the blade and surface of the glass windshield.

II. To accomplish this the wiper should have a sufficiently high coefficient of friction. Otherwise, the blade will simply ride over the water, resulting in streaking.

III. While in use on a vehicle, wiper blade's surfaces are subjected to environmental contamination by insoluble grime and contaminants which cause a lowering of the blade's coefficient of friction, resulting in an increased propensity to ride over water and cause streaks which undesirably reduces visibility through the windshield.

IV. In the present application, acids, and in particular sulfonic acid, are used to both remove grime and contaminants from the wiper and the windshield, and to increase the blade's coefficient of friction on the windshield back to its desired coefficient of friction on the windshield by interacting with the blade. This increase in coefficient of friction typically continues even after the majority of the sulfonic acid has washed off, indicating a modification of the wiper by the acid, which is not taught by the prior art.

V. In Liddle, sulfonic acid was used in combination with polysiloxane for exactly the opposite purpose, that is to decrease the coefficient of friction on the glass windshield so that water would run off rather than adhere to the glass.

VI. Palcher accomplished his objectives of protecting wiper blades by decreasing the blade's coefficient of friction so that dirt and other contaminants would not adhere to the blade's surface. (Column 1, lines 27 - 30).

VII. In the present application the objectives (reducing blade streaking) are met by just the opposite means, that is increasing the blade's coefficient of friction (by applying an acid) so the blade pushes the water off the windshield rather than simply riding over the water.

There is no reasonable basis for one skilled in the art to combine the teachings of the Liddle and Palcher references in such a way as to exclude or not require the use of polysiloxane. The examiner has ignored the requirement of both references that a polysiloxane be used and has rather only required the use of one particular acid (i.e., sulfonic acid) which was not taught by the Palcher reference and was not used in any of the examples of the Liddle reference (Liddle used sulfuric and hydrofluoric acid). It is applicants' understanding that all of the desirable properties of the Palcher and Liddle references (except for long term retention of hydrophobicity) are attributed to the polysiloxane component. Only by using hindsight and recognizing that the only element required in applicant's claims is sulfonic acid, would one be motivated to combine the Palcher and Liddle references in order to use sulfonic acid by itself (a component only optionally used in the Liddle reference, and not used at all in the examples where hydrofluoric acid was used), and without the use of polysiloxane (a major functional component in Palcher and in the treatment of the Liddle reference, see column 2 of Liddle reference, lines 51 - 65 wherein only from 1 to 30 wt. % acid was used per 100 parts of polysiloxane). Further, as can be seen from the Palcher claims, 1 - 5, the composition thereof is limited to consisting essentially of emulsifiable organo polysiloxanes and water miscible polyol compounds.

In the Background of Invention of the Liddle reference, col. 1, lines 36-44, it is pointed out that the use of acids with polysiloxanes was published as early

as May, 1971 in U.S. Patent 3,579,540 for the treatment of non-porous surfaces such as glass. Therefore, the technology of using acids and polysiloxanes was readily publicly available before the time the Palcher reference was filed (between October, 1971 through January, 1974), and would have been included in the Palcher reference if the concept of using sulfonic acid alone, or in combination with polysiloxane, to treat rubber wiper blades had the same appeal to the inventor of the Palcher reference that it has to the Examiner.

In summary, a prima facie valid 103 rejection has to have some motivation for selecting particular components from the references chosen. As the Palcher and Liddle references both require polysiloxane as an essential ingredient to their treatments, there is no motivation for one skilled in the art to delete the key ingredient and, instead, select sulfonic acid (mentioned in the Liddle specification but not used in the Liddle examples) as a treatment for wiper blades.

The Bright et al. reference also has no reason to be combined with the Palcher and Liddle references, absent the teachings of applicant's specification. The title of the Bright et al. reference relates to windshield cleaner formulations which has no relationship to the Palcher reference, which is a treatment for rubber, polymers, leather, etc. The Bright et al. reference being a cleaner composition, is the anti-thesis of the Liddle reference, which is a treatment for the glass or other non-porous surface to make it dirt repellent and water repellent. The cleaning solution of the Bright et al. reference would, if it is an effective cleaning solution, probably partially or completely remove the treatment of the Liddle reference. As the Palcher reference does not mention any acids, especially sulfonic acid, there is no reason to combine the Bright et al. reference therewith, which is based on sulfonic acids.

Finally, applicant would like to review how one skilled in the art would evaluate the references applied by the Examiner. One skilled in the art would be aware of U.S. Patents such as U.S. 4,045,838 to Raymond Porter, which nicely summarizes the background of the windshield wiper treatments and the manufacture of windshield wiper blades in col. 1, line 37 through col. 2, line 51. One skilled in the art would know that the coefficient of friction of a windshield wiper blade is desirably no greater than 2.1, and preferably less than 1.5 or 1 as set forth in col. 1, lines 55-65. One skilled in the art would know that often times, new wiper blades have too high of a coefficient of friction, and this can be reduced by halogenation such as taught in U.S. Patent 3,035,297, or by treatment with an inorganic acid. These treatments are set forth in U.S. Patent 4,045,838, col. 2, lines 28-41. Although this information is most conveniently found in this particular patent 4,045,838, it is also available in the numerous other prior art references supplied to the Examiner with the Information Disclosure Statement, or during the prosecution of this application.

One skilled in the art, based upon the teachings of U.S. 4,045,838, specifically col. 2, lines 38, 39, 40 and 41 would know that inorganic acids such as nitric acid and sulfuric acid, used as treatments of wiper blades will in a relatively short time, such as 2 minutes, reduce the coefficient of friction of wiper blades. One skilled in the art knowing about the use of inorganic acid such as hydrochloric acid, sulfonic acid and hydrofluoric acid would not anticipate them as effective ways of softening or otherwise treating used windshield wiper blades (which may have hardened from use or environmental exposure), nor would one skilled in the art combine an inorganic acid, based on the Palcher and Liddle references, with polysiloxanes unless the purpose of the

treatment was to decrease the coefficient of friction of the windshield wiper blade which is contrary to the purpose of the captioned invention.

The current applicant has found that sulfonic acid softens the windshield wiper blade (this can also be expressed as increasing the coefficient of friction of the windshield wiper blade) which is contrary to the teachings of U.S. 4,045,838 with respect to sulfuric or nitric acid. Thus, applicant has an unexpected result over the most relevant prior art. The unexpected result is reported in detail in applicant's application on pages 1 and 15, wherein he shows that the sulfonic acid treatments, Example 11, and generally 16-39, dramatically reduce streaking of windshield wiper blades. Applicant's point here is that one skilled in the art would have been taught by the prior art against using sulfonic acid to soften the wiper blades to reduce windshield wiper streaking. The Liddle reference, being directed to the improvements derived from the reaction product of polysiloxanes with these inorganic acids, contravenes the merit of using sulfonic acid alone as a treatment of rubber wiper blades because as discussed above, the polysiloxane undesirably reduces rather than increases the blade's coefficient of friction.

9. RELIEF SOUGHT

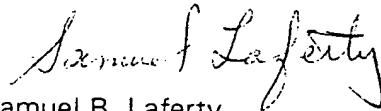
It is respectfully requested that the final rejection of claims 13, 15-18, and 20 be reversed. A Notice of Allowance is earnestly solicited.

10. FEE AUTHORIZATION

A check for \$210 is enclosed for the Appeal Brief fee of \$155.00, and the one-month extension of time fee of \$55.00 for a small entity. The Commissioner is hereby authorized to charge any additional fees to Deposit Account No. 08-3150. A duplicate of this sheet is attached.

Respectfully submitted,

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Enclosure: Copy of U.S. Patent No. 4,045,838

APPENDIX

APPEALED CLAIMS

Claims 1 - 12 are cancelled.

13. A process for treating a rubber, a thermoplastic elastomer, or a plastic wiper blade comprising;

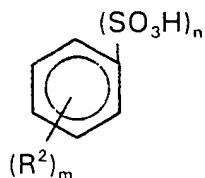
applying a composition including one or more sulfonic acids or salt thereof to the wiping surface of said wiper blade, said sulfonic acid having from about 2 to about 36 carbon atoms.

14. Cancelled

15. A process according to claim 13, wherein said sulfonic acid is an alkyl sulfonic acid of the formula



wherein R^1 contains from 2 to 36 carbon atoms, or
an aromatic sulfonic acid having the formula



or combinations thereof, or

a metal salt of said alkyl sulfonic acid or said aromatic sulfonic acid, wherein m is an integer of 1 to 4, n is an integer of from 1 to 4, with the proviso that $m + n$ is 6 or less, wherein each R^2 , independently, is an alkyl having from 1 to 30 carbon atoms and optionally contains at least one halogen, nitro, alcohol, carbonyl, or carboxyl group thereon, or combinations thereof.

16. A process according to claim 15, wherein each said R^2 group has a total of from about 9 to 13 carbon atoms.

17. A process according to claim 16, wherein said sulfonic acid is said aromatic sulfonic acid, or an alkali metal or an amine salt thereof, or combinations thereof.

18. A process according to claim 17, wherein said composition further includes one or more diluents.

(Applicant has requested the cancellation of claim 19)

19. A process according to claim 17, wherein said composition further includes one or more lubricants.

20. A process according to claim 17, wherein said composition further includes one or more water miscible solvents, or one or more acids other than said sulfonic acid, or one or more agents to adjust the viscosity of said composition, or one or more rubber protectorants to protect said rubber, said thermoplastic elastomer, or said plastic wiper blade from oxidation, or one or more neutralizers, or one or more plasticizers or softeners, or combinations thereof.

Claims 21 - 28 are cancelled.